CDC Commemorates 25 Years of HIV/AIDS

MMWR: Chronicling HIV and AIDS from the Beginning

June 2006

In 1981, the *CDC Morbidity and Mortality Weekly Report (MMWR)* published the first article on an opportunistic infection associated with what we now call the human immunodeficiency virus (HIV). This article was quickly followed by others. In the span of 18 months, we learned of rare pneumonias in homosexual men and people with hemophilia, that this new disease called acquired immunodeficiency disease (AIDS) could be transmitted through blood products and that infants could also be infected with HIV if their mothers were infected. The titles of these *MMWR* reports chronicle the growing worry of the general public and the frantic efforts of scientists and public health workers to understand what the infectious agent was, how it was transmitted, and how to stop it.

The *MMWR* also documented remarkable successes: the identification of the retrovirus that causes AIDS (1984), a blood test to identify antibodies to the virus (1985), interventions to prevent transmission to newborns (1985), and the first published guidelines for the use of zidovudine among pregnant women with HIV (1994).

The following are summaries of some of the *MMWR* articles that mark milestones in the HIV/AIDS epidemic.

June 1981
***Pneumocystis* pneumonia—Los Angeles.**
***MMWR* 1981;30:250–252**

From October 1980 through May 1981, 5 homosexual men, who did not know each other and had no known common contacts, were treated for *Pneumocystis carinii* pneumonia (PCP) in Los Angeles. All 5 patients had previous or current cytomegalovirus infection and candidal mucosal infection.

Editorial note: At the time, PCP in the United States was seen only in severely immunosuppressed patients. The occurrence of pneumocystosis in these 5 previously healthy persons without a clinically apparent underlying immunodeficiency was unusual. The observations in this article suggested the possibility of a cellular immune dysfunction related to a common exposure that predisposed these men to opportunistic infections.

July 1982
Epidemiologic Notes and Reports: *Pneumocystis carinii* pneumonia among persons with hemophilia A. *MMWR* 1982;31:365–367

CDC received reports of 3 cases of *Pneumocystis carinii* pneumonia (PCP) among patients with hemophilia A and without other underlying disease. All 3 were heterosexual males without a history of injection drug use. All had lymphopenia, and 2 had evidence of cellular immune deficiency. No 2 patients were known to have received Factor

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VIII concentrate from the same lots.

Editorial note: The similarity of the clinical and immunologic features of these 3 patients and the features observed among homosexual males, heterosexual IV drug users, and Haitians who had recently entered the United States suggested the possible transmission of an agent through blood products.

December 1982
Epidemiologic Notes and Reports: possible transfusion-associated acquired immune deficiency syndrome (AIDS)—California. *MMWR* 1982;31:652–654

CDC received a report of a 20-month-old infant in the San Francisco area in whom unexplained cellular immunodeficiency and opportunistic infection had developed after multiple transfusions. The transfusions included platelets derived from the blood of a male later found to have the acquired immune deficiency syndrome (AIDS).

Editorial note: The etiology of AIDS was unknown, but its reported occurrence among homosexual men, injection drug users, and persons with hemophilia A suggested that it might be caused by an infectious agent transmitted sexually or through blood or blood products. If the infant's illness was AIDS, its occurrence following the receipt of blood products from a person known to have AIDS added support to the infectious-agent hypothesis. Because the donor was in apparent good health at the time he donated blood, it was possible that the agent was present in the blood of a donor before the onset of symptomatic illness. This report and continuing reports of AIDS among persons with hemophilia A raised serious questions about the possible transmission of AIDS through blood and blood products.

December 1982
Unexplained immunodeficiency and opportunistic infections in infants—New York, New Jersey, California. *MMWR* 1982;31:655–667

CDC received reports of 4 infants who were less than 2 years of age and who had unexplained cellular immunodeficiency and opportunistic infections. None of the 4 infants described in the case reports was known to have received blood or blood products before the onset of illness.

Editorial note: It was thought that these infants had the acquired immune deficiency syndrome (AIDS). The mother of 1 of the infants had died of PCP, probably secondary to AIDS. The mothers of the other 3 infants were Haitian or injection drug users, groups at risk for AIDS. The immunologic features described in the case reports resembled those seen both in adults with AIDS and in a child reported to have developed immunodeficiency following receipt of blood products from a patient with AIDS. If the infants described in the 4 case reports had AIDS, exposure to the "AIDS agent" must have occurred very early. Transmission of an AIDS agent from mother to child, *in utero*, during, or shortly after birth, could account for the early onset of immunodeficiency in these infants.

January 1983
Epidemiologic Notes and Reports: Immunodeficiency among female sexual partners of males with acquired immune deficiency syndrome (AIDS)—New York. *MMWR* 1983;31:697–698

CDC received reports of 2 females with cellular immunodeficiency who had been steady sex partners of males with the acquired immune deficiency syndrome (AIDS).

Editorial note: Other than their relationships with their male sexual partners, neither patient had any apparent risk factor for AIDS. At the time, epidemiologic observations increasingly suggested that AIDS was caused by an infectious agent. This

report supported the infectious-agent hypothesis and the possibility that transmission of the "AIDS agent" could occur both among heterosexual and male homosexual couples.

March 1984
Current Trends: Prevention of acquired immune deficiency syndrome (AIDS): report of inter-agency recommendations. *MMWR* 1983;32:101–103

Since June 1981, over 1,200 cases of acquired immune deficiency syndrome (AIDS) had been reported to CDC from 34 states, the District of Columbia, and 15 countries. Over 450 persons with AIDS had died, and the case-fatality rate exceeded 60% for cases first diagnosed more than 1 year previously. Epidemiologic evidence identified several groups in the United States at increased risk for the development of AIDS. Most cases had been reported among homosexual men with multiple sexual partners, abusers of intravenous drugs, and Haitians, especially those who entered the country within the few years prior to this report. Available data suggested that the severe disorder of immune regulation underlying AIDS was caused by a transmissible agent.

Although the cause of AIDS remained unknown, the Public Health Service recommended the following actions:

- Sexual contact should be avoided with persons known to have, or suspected of having, AIDS.
- Members of groups at increased risk for AIDS should refrain from donating plasma or blood.
- Studies should be conducted to evaluate screening procedures for effectiveness in identifying and excluding plasma and blood with a high probability of transmitting AIDS.
- Physicians should adhere strictly to medical indications for transfusions, and autologous blood transfusions were encouraged.
- Work should continue toward the development of safer blood products for use by hemophilia patients.

The intent of this recommendation was to eliminate from the supply any plasma and blood potentially containing the AIDS agent. Because no specific test was known to detect AIDS at an early stage in a potential donor, the recommendation to discourage donation encompassed all members of groups at increased risk for AIDS, even though it included many individuals who were at little risk of transmitting AIDS.

July 1984
Antibodies to a retrovirus etiologically associated with acquired immunodeficiency syndrome (AIDS) in populations with increased incidences of the syndrome. *MMWR* 1984;33:377–379

Evidence implicated a retrovirus as the etiologic agent of acquired immunodeficiency syndrome (AIDS). Two prototype isolates were described. One, isolated from the lymph node cells of a homosexual man with unexplained generalized lymphadenopathy, a syndrome associated with AIDS, was termed lymphadenopathy-associated virus (LAV). A morphologically similar T-lymphotrophic retrovirus (HTLV-III) was isolated from lymphocytes of 26 of 72 patients with AIDS and from 18 of 21 patients with conditions thought to be related to AIDS. The isolation of retroviruses antigenically identical to LAV from a blood donor-recipient pair, each of whom developed AIDS, provided further evidence that this virus was the etiologic agent of AIDS and could be transmitted through blood transfusion.

Editorial note: The high prevalence of antibody to HTLV-III/LAV among these groups and the increasing prevalence among homosexual men in San Francisco further supported HTLV-III/LAV as the etiologic agent of AIDS. This report further demonstrated that exposure to the virus is much more common than AIDS itself among populations with increased incidences of the disease. These serologic tests were sufficiently sensitive and specific to be of value in estimating the frequency of infection with HTLV-III/LAV in certain populations and for providing important

information about the natural history of the disease in such groups. Less clear were the implications of a positive test result for an individual. For some, the result may be a false positive. A positive test result for most persons in populations at greater risk of acquiring AIDS probably meant that the individual had been infected with HTLV-III/LAV at some time. Whether the person was currently infected or was immune was not known. For seropositive persons with mild or no signs of disease, including those in whom the virus could be demonstrated, the prognosis remained uncertain. At the time, it was estimated that the incubation period for life-threatening manifestations of AIDS might range from 1 year to more than 4 years.

December 1985
Current Trends: Recommendations for assisting in the prevention of perinatal transmission of human T-lymphotropic virus type III/lymphadenopathy-associated virus and acquired immunodeficiency syndrome. *MMWR* 1985;34:721-6,731-2

This document was created to assist health care providers and state and local health departments in developing procedures to prevent the perinatal transmission of human T-lymphotropic virus type III/lymphadenopathy-associated virus (HTLV-III/LAV), the virus that causes acquired immunodeficiency syndrome (AIDS).

As of December 1, 1985, 217 (1%) of the 15,172 AIDS cases reported to CDC occurred among children under 13 years of age. Of the 217, 165 (76%) had as their only known risk factor a mother who belonged to a group with increased prevalence of HTLV-III/LAV infection. An additional 18% of the pediatric cases were attributable to transfusions of blood or blood products.

This document contained recommendations for offering counseling services and testing for antibody to HTLV-III/LAV to pregnant women and women who might become pregnant in groups considered at high risk. Additionally, the document outlined recommendations about breastfeeding if the woman was infected with HIV and counseling for women who received a negative HIV test result; it also discouraged blood or organ donation for high-risk women.

August 1987
Perspectives in Disease Prevention and Health Promotion: Public Health Service guidelines for counseling and antibody testing to prevent HIV infection and AIDS. *MMWR* 1987;36:509–515

These guidelines were the outgrowth of the 1986 recommendations published in the *MMWR*, the report on the 1987 Conference on Counseling and Testing, and a series of meetings with representatives from various organizations.

Human immunodeficiency virus (HIV), the causative agent of acquired immunodeficiency syndrome (AIDS), had been shown to be spread by sexual contact, parenteral exposure to blood (IV drug use) and rarely, by other exposures to blood, and from an infected woman to her fetus or infant.

It was recommended that the following persons should be routinely counseled and tested for HIV antibody:

- All persons seeking treatment for a sexually transmitted disease in all health care settings
- All persons seeking treatment for IV-drug abuse or having a history of IV-drug use
- All persons who consider themselves at risk for HIV infection
- All women of childbearing age with identifiable risks for HIV infection

Additionally,

- Persons considering marriage should receive information about AIDS, HIV infection, and the availability of counseling and testing.
- Hospitals should periodically determine the prevalence of HIV infections in the age groups

at highest risk for infection.

- Correctional systems should study the best means of implementing programs for counseling inmates about HIV infection and for testing them.
- Federal prisons were instructed to test all prisoners when they enter and when they leave the prison system.
- Male and female prostitutes should be counseled, tested, and made aware of the risks of HIV infection to themselves and others.
- Every effort should be made to improve the confidentiality of test results.

August 1994
Recommendations of the US Public Health Service Task Force on the Use of Zidovudine to Reduce Perinatal Transmission of Human Immunodeficiency Virus. *MMWR* 1994;43(RR-11):1–20

On June 6, 1994, the US Public Health Service convened a workshop in Bethesda, Maryland, to develop recommendations for the use of zidovudine to reduce the risk for perinatal transmission of HIV. The recent results of AIDS Clinical Trials Group protocol 076, a controlled clinical trial sponsored by the National Institutes of Health in collaboration with the National Institute of Health and Medical Research and the National Agency of Research on AIDS in France, indicated that zidovudine administered to a selected group of HIV-infected pregnant women and their infants could reduce the risk for perinatal transmission of HIV by approximately two thirds. The implications of these results for use of zidovudine in HIV-infected pregnant women and neonates were discussed at the workshop.

This document summarized the results of the trials, discussed limitations in the interpretation of the results, reviewed the potential long-term adverse effects of this ZDV regimen for infants and women, and provided recommendations for the use of ZDV to reduce perinatal transmission and for medical monitoring of the pregnant women and infants receiving this therapy.

February 1997
Update: Trends in AIDS incidence, deaths, and prevalence, United States, 1996. *MMWR* 1997;46:165–173

From 1981 through 1996, a total of 573,800 persons with AIDS who were 13 years and older were reported to CDC by state and local health departments. Eighty-five percent were males, 15% females. Forty-seven percent were white, 35% black, 18% Hispanic, <1% were Asian/Pacific Islander, and <1% were American Indian/ Alaska Native.

Deaths among persons with AIDS had declined substantially from recent years. Despite this trend, during 1995, HIV infection was the leading cause of death among persons aged 25-44 years, accounting for 19% of deaths from all causes in this age group.

April 1998
Report of the NIH Panel to Define Principles of Therapy of HIV Infection and guidelines for the use of antiretroviral agents in HIV-infected adults and adolescents. *MMWR* 1998;47(RR-5):42–82

This report, a collaborative effort of CDC, the National Institutes of Health, Department of Health and Human Services, and the Henry J. Kaiser Foundation, was directed primarily to providers who care for HIV-infected persons but was also intended for patients, payers, pharmacists, and public health officials. The report comprised 2 articles: 1) report of the NIH Panel to Define Principles of Therapy of HIV infection, which provides the basis for the use of antiretroviral drugs and 2) guidelines for the use of antiretroviral agents in HIV-infected adults and adolescents, which provides specific recommendations regarding when to start, how to monitor, and when to change therapy, as well as specific combinations of drugs that should be considered.

The 2 years before the issuance of this report saw remarkable advances in the development of antiretroviral therapy (ART) for HIV infection, as well as measurement of HIV plasma RNA (viral load) to guide the use of antiretroviral drugs. The use of ART, in conjunction with the prevention of specific HIV-related opportunistic infections (OIs), was associated with dramatic decreases in the incidence of OIs, hospitalizations, and deaths among HIV-infected persons.

September 1999
Resurgent bacterial sexually transmitted disease among men who have sex with men—King County, Washington, 1997–1999. *MMWR* 1999;48:773–777

During the late 1980s and early 1990s, King County, Washington, experienced a substantial epidemic of infectious syphilis among men who have sex with men (MSM). The number of reported cases of infectious syphilis declined to 6 in 1995 and 1 in 1996. In 1997, the sustained spread of syphilis was reestablished in King County and continued through the first half of 1999.

Editorial note: The incidence of STDs among MSM declined substantially during the early 1980s as a result of a decrease in risky sexual behavior. In Washington, the proportion of cases of primary and secondary syphilis among MSM declined from 81% in 1973 to 8% in 1988. The findings of this study indicated that syphilis transmission in King County was occurring predominantly among MSM. In addition to this outbreak, recent reports suggested increases in gonococcal infection in several western states and in the frequency of unprotected anal sex among MSM.

The reasons for the increasing rates of bacterial STD in MSM in King County were unknown but were speculated to include an increased frequency of unprotected sex among some MSM. The age distribution of syphilis cases suggested that in King County, relapse in sexual safety among older MSM was a more important determinant than was the failure of young, newly sexually active MSM to adopt safer sex practices. This outbreak demonstrated the need to sustain surveillance for STDs even after rates in a community decreased.

December 1999
Guidelines for national human immunodeficiency virus case surveillance, including monitoring for human immunodeficiency virus infection and acquired immunodeficiency syndrome. *MMWR* 1999;48(RR-13):1–28

As a result of advances in treatment with highly active antiretroviral therapy (HAART) since 1996, persons infected with HIV were living longer than before, and the progression to acquired immunodeficiency syndrome (AIDS) slowed. Consequently, AIDS surveillance no longer provided accurate population-based monitoring of the HIV epidemic. Therefore, CDC recommended that all states and territories conduct case surveillance for HIV infection as an extension of AIDS surveillance activities. Expanded surveillance provided additional data about HIV-infected populations to enhance local, state, and federal efforts to prevent HIV transmission and to improve allocation of resources for treatment services, and it assisted in evaluating the effect of public health interventions. This report included a revised case definition for HIV infection in adults and children and recommendations for program practices and performance and for security standards for the conduct of HIV/AIDS surveillance by local, state, and territorial health departments.

January 2000
HIV/AIDS among racial/ethnic minority men who have sex with men—United States, 1989–1998. *MMWR* 2000;49:4–11

This report presented recent trends in AIDS incidence and deaths among MSM who belonged to minority races/ethnicities and compared data on diagnoses of human immunodeficiency virus (HIV) and AIDS during 1996–1998 among MSM

of minority races/ethnicities in the 25 states that had conducted confidential HIV surveillance and AIDS case surveillance since 1994. The findings indicated that among MSM, non-Hispanic black and Hispanic men accounted for an increasing proportion of AIDS cases and had experienced smaller proportionate declines in AIDS incidence and deaths from 1996 through 1998. Higher proportions of young (aged 13–24 years) MSM of minority races/ethnicities, compared with white MSM, had diagnoses of HIV infection and AIDS

Editorial note: These HIV/AIDS surveillance data highlighted the importance of increased efforts to promote HIV prevention and treatment services in communities of minority races/ethnicities, particularly among non-Hispanic black and Hispanic MSM. For these groups, the rates of AIDS were higher, and proportionate decreases in AIDS incidence were smaller. The annual number of AIDS cases remained high, although AIDS incidence and deaths had declined among racial/ethnic minority MSM. These declines reflected the benefits of HIV prevention programs, HAART, and opportunistic infection prophylaxis. Young non-Hispanic black and Hispanic MSM remained at high risk for HIV infection as indicated by higher proportions of AIDS and HIV cases among non-Hispanic black and Hispanic MSM aged 13–24 years compared with white MSM.

May 2001
Successful implementation of perinatal HIV prevention guidelines. *MMWR* 2001;50 (RR-6):17–28

In 1994, zidovudine (ZDV) was demonstrated to substantially reduce the perinatal transmission of HIV. Guidelines regarding the use of ZDV to reduce transmission and regarding the counseling and voluntary testing of pregnant women were issued in 1994 and 1995, respectively. Surveillance methods were used to evaluate the implementation of these guidelines and to explain the reasons for the continued perinatal transmission of HIV.

From 1993 through 1996, the proportion of HIV-infected women with a diagnosis before delivery increased from 70% to 80%. The proportion of women with a diagnosis who received ZDV prenatally increased from 27% to 83% and intrapartum, 6% to 75%; for neonates, the increase was from 8% to 77%. Of the children who received ZDV, 8% were infected compared with 16% of those who received no ZDV.

ZDV, used for treating pregnant HIV-infected women, was rapidly adopted in clinical practice and reduced the transmission of HIV.

November 2001
Revised guidelines for HIV counseling, testing, and referral (1-58) and revised recommendations for HIV screening of pregnant women (59-86). *MMWR* 2001; 50(RR-19):1–86

These guidelines replaced CDC's 1994 guidelines, HIV Counseling, Testing, and Referral Standards and Guidelines, and contained recommendations for public- and private-sector policymakers and service providers of HIV counseling, testing, and referral (CTR). This revision was prompted by scientific and programmatic advances in HIV CTR, as well as advances in prevention and the treatment and care of HIV-infected persons.

The new guidelines differed from the previous ones in several respects. They

- Gave guidance to all providers of voluntary HIV CTR in the public and private sectors
- Used an evidence-based approach to provide specific recommendations for CTR
- Underscored the importance of early knowledge of HIV status and in making testing more accessible and available
- Acknowledged providers' need for flexibility in implementing the guidelines, given their particular client base, setting, HIV prevalence level, and available resources

- Recommended that CTR be targeted efficiently through risk screening and other strategies
- Addressed ways to improve the quality and provision of HIV CTR

The revised recommendations for HIV screening of pregnant women replaced CDC's 1995 guidelines. Some of the major revisions from the 1995 guidelines were as follows:

- Emphasized HIV testing as a routine part of prenatal care and strengthened the recommendation that all pregnant women be tested for HIV
- Recommended simplification of the testing process so that pretest counseling would not be a barrier to testing
- Made the consent process more flexible to allow for various types of informed consent
- Recommended that providers explore and address reasons for refusal of testing
- Emphasized HIV testing and treatment at the time of labor and delivery for women who had not received prenatal testing and thus if infected, had not received antiretroviral drugs.

November 2002
US Public Health Service Task Force recommendations for use of antiretroviral drugs in pregnant HIV-1–infected women for maternal health and interventions to reduce perinatal HIV-1 transmission in the United States. *MMWR* 2002;51(RR-18):1–38

These recommendations updated the February 4, 2002, guidelines developed by the Public Health Service for the use of zidovudine (ZDV) to reduce the risk for perinatal HIV-1 transmission. This report gave health care providers information for discussion with HIV-1–infected pregnant women to enable such women to make an informed decision regarding the use of antiretroviral drugs during pregnancy and the use of elective cesarean delivery to reduce perinatal HIV-1 transmission. To prevent perinatal transmission, it was recommended that ZDV chemoprophylaxis be incorporated into the antiretroviral regimen.

April 2003
Advancing HIV Prevention: new strategies for a changing epidemic—United States, 2003. *MMWR* 2003;52:329–332

Because of concerns that HIV incidence might be increasing in certain populations, CDC launched the Advancing HIV Prevention (AHP) initiative to increase emphasis on HIV testing and the provision of prevention services for persons living with HIV. Until this time, CDC had, by providing funding to state and local health departments and nongovernmental community-based organizations (CBOs) for programs to reduce risky sexual and drug-using behaviors, mainly directed its prevention efforts to persons at risk of becoming infected. This document outlined the rationale for AHP, which aimed to reduce barriers to early diagnosis of HIV infection and to increase access to high-quality medical care, treatment, and ongoing prevention services. AHP had 4 key strategies:

1. Make HIV testing a routine part of medical care.
2. Implement new models for diagnosing HIV infections outside medical settings.
3. Prevent new infections by working with HIV-infected persons and their partners.
4. Further decrease perinatal transmission.

July 2003
Incorporating HIV prevention into the medical care of persons living with HIV: recommendations of CDC, the Health Resources and Services Administration, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. *MMWR* 2003;52(RR-12):1–24

Reducing the transmission of HIV in the United States required new strategies, including emphasis on preventing transmission by HIV-infected

persons. To help incorporate HIV prevention into the medical care of HIV-infected persons, CDC, HRSA, NIH, and HIV Medicine Association of the Infectious Diseases Society of America developed these recommendations. The recommendations applied to incorporating HIV prevention into the medical care of all HIV-infected adolescents and adults, regardless of age, sex, or race/ethnicity.

November 2003
Increases in HIV diagnoses—29 states, 1999–2002. *MMWR* 2003;52:1145–1148

CDC analyzed trends in HIV diagnoses during 1999–2002 in 29 states that had confidential, name-based HIV/AIDS surveillance. This report summarizes the results of that study, which indicated that the number of HIV diagnoses had increased among men, particularly MSM, and also among non-Hispanic whites and Hispanics. The findings emphasized the need for new prevention strategies to reverse potential increases in HIV transmission among these populations.

January 2005
Antiretroviral postexposure prophylaxis after sexual, injection-drug use, or other nonoccupational exposure to HIV in the United States: recommendations from the US Department of Health and Human Services. *MMWR* 2005;54(RR-2):1–19.

These recommendations noted that antiretroviral drugs to prevent HIV infection after unanticipated exposure through sex or injection drug use might be beneficial. The US Department of Health and Human Services Working Group on Nonoccupational Postexposure Prophylaxis (nPEP) made the following recommendations for the United States. For persons seeking care 72 hours or less after nonoccupational exposure to blood, genital secretions, or other potentially infectious body fluids of a person known to be HIV infected, when that exposure represents a substantial risk for transmission, a 28-day course of highly active antiretroviral therapy (HAART) is recommended. Antiretroviral medications should be initiated as soon as possible after exposure. Clinicians might consider prescribing nPEP for exposures conferring a serious risk for transmission, even if the person seeks care more than 72 hours after exposure if, in their judgment, the diminished potential benefit of nPEP outweighs the risks for transmission and adverse events.

June 2005
HIV prevalence, unrecognized infection, and HIV testing among men who have sex with men—five US cities, June 2004–April 2005. *MMWR* 2005;54:597–601

CDC analyzed data from 5 of 17 cities participating in the National HIV Behavioral Surveillance (NHBS) system. This report summarized preliminary findings from the HIV-testing component of NHBS, which indicated that of MSM surveyed, 25% were infected with HIV and 48% of those persons were unaware of their infection.

Editorial note: Consistent with the findings of other studies of young MSM conducted in the same cities by using similar sampling methods, this study revealed that 1) prevalence and incidence of HIV infection in this population were high; 2) many HIV-infected MSM, particularly younger and black MSM, were unaware they were HIV-infected; and 3) among MSM with unrecognized infection, nearly half had presumably acquired HIV during the preceding year and many had not been tested recently because of fears of testing positive. These findings underscored the need to increase testing and improve primary prevention practices for MSM.

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